



Transmission Reliability Program Peer Review

U.S. Department of Energy

**Office of Electric Transmission
and Distribution**

January 27-29, 2004

Philip N. Overholt



TR Program Strategic Goal



- Develop technologies and technically-based policy options to enhance the reliability and economic efficiency of the Nation's electric power delivery system under competitive electricity markets



Response to DOE Strategic Objectives



- **National Energy Policy**
 - NEP 7.2 ...directs DOE to expand the Department's research and development on transmission reliability and superconductivity
 - NEP 7.4 ...directs DOE to examine the benefits of a national grid, identify transmission bottlenecks, and measures to remove them (Grid Study)
- **National Transmission Grid Study**
 - The Transmission Reliability program responds to 21 recommendations that call for DOE actions.
- **Emerging Findings From August 14, 2003 Blackout Investigation**



Research Activity Areas



- Real Time Grid Reliability Management
- Reliability and Markets
- Load as a Resource
- Reliability Technology Issues and Needs Assessment
- National Transmission Technology Research Center
- Advanced Conductors



Real Time Grid Reliability Management



- Focus: Develop real time grid and market operations monitoring and performance tools supported by advanced security and control software
- Program Goal: By 2012, develop a portfolio of real time technologies and decision support tools that combine to create an automatic switchable grid in a major region that maximizes electric system utilization, automatically mitigates system disturbances, ensures reliability of the grid operations, and efficient electricity markets.



Reliability and Markets



- Focus: Develop a comprehensive set of integrated market/engineering design principles and tools for a restructured electricity business.
- Program Goal: By 2009, design, perform, and interpret market simulations that validate regional transmission organization's (RTO) electric market designs prior to full scale implementation, and assist Federal, State, and RTO decision makers in establishing electricity market designs.



Load as a Resource



- Focus: Improve reliability and system efficiency through responsive demand
- Program Goal: By 2008, demonstrate demand response program designs and systems that allow load to participate in the reserve markets, and enable customer loads to respond to real time prices



Reliability Technology Issues and Needs Assessment



- Focus: Conduct periodic assessments to identify and define emerging issues in electric systems reliability and markets
- Program Goal: Ensure that where there is a Federal role, new issues and needs are integrated into the program's research activity areas



National Transmission Technology Research Center



- Focus: Conduct cost-shared testing of advanced transmission technologies with industry. The center is a specific recommendation of the NTGS
- Program Goal: By 2009, complete testing of five advanced, innovative transmission system technologies



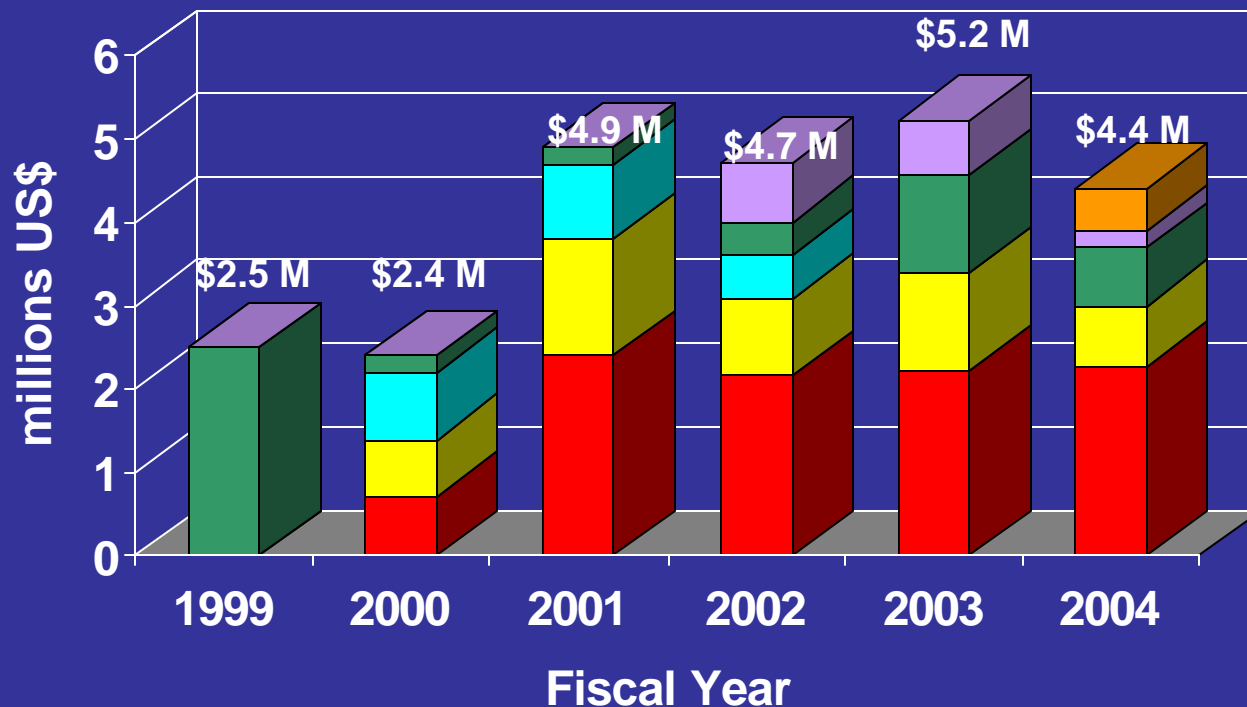
Advanced Conductors



- Focus: Develop and evaluate advanced high capacity conductors
- Program Goal: By 2006, demonstrate advanced composite conductors that increase capacity by 30 to 100 percent over conventional conductors and that can be installed on existing rights of way without towers modifications



DOE Transmission Reliability Program – Actual Budget



- National Transmission Infrastructure Initiative
- Load as a Resource
- Reliability Technology Issues & Needs Assessment
- DER Integration
- Reliability & Markets
- Real-Time Grid Reliability Management



Peer Review Format



- Six independent reviewers provide feedback to the program
- 30 minute presentations followed by a 10 minute Q&A period
- Reviewers have priority during Q&A



Peer Reviewers



- Diane Barney – New York State Department of Public Service
- Dale Bradshaw – TVA
- Hung-Po Chao – EPRI
- Rick Counihan – E2I
- Dale Krummen – AEP
- Dave Sharma – FERC